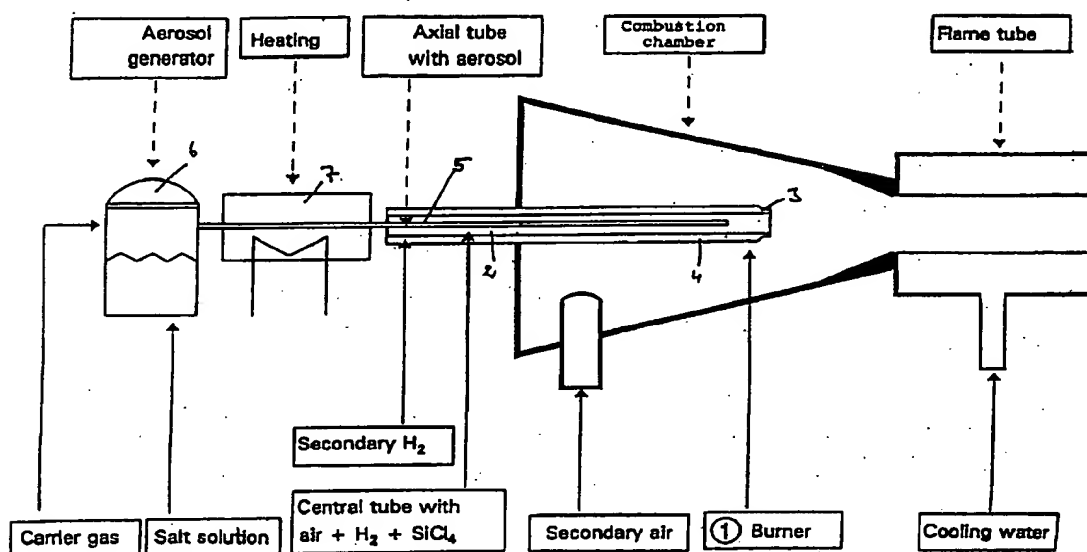




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(54) **OXYDES DOPES, PREPARES PAR VOIE PYROGENIQUE**  
(54) **DOPED, PYROGENICALLY PREPARED OXIDES**



(57) Oxydes de métaux et (ou) d'autres matériaux, préparés par voie pyrogénique, dopés avec un ou plusieurs constituants, à raison de 0,00001 à 20 % en poids. Le constituant de dopage peut être un métal et (ou) un autre matériau, ou un oxyde et (ou) un sel d'un métal et (ou) d'un autre matériau. L'aire surfacique BET de l'oxyde dopé peut se situer entre 5 et 600 m<sup>2</sup>/g. Les oxydes de métaux et (ou) d'autres matériaux, préparés par voie pyrogénique et dopés, sont préparés par addition d'un aérosol renfermant une solution aqueuse d'un métal et (ou) d'un autre matériau au mélange gazeux pendant l'hydrolyse à la flamme de composés vaporisables de métaux et (ou) d'autres matériaux. Les oxydes dopés préparés par voie pyrogénique peuvent servir, par exemple, comme charges.

(57) Doped, pyrogenically-prepared oxides of metals and/or non-metals, which are doped with one or more doping components in an amount of 0.00001 to 20 wt.%. The doping component may be a metal and/or a non-metal, or an oxide and/or a salt of a metal and/or a non-metal. The BET surface area of the doped oxide may be between 5 and 600 m<sup>2</sup>/g. The doped pyrogenically-prepared oxides of metals and/or non-metals are prepared by adding an aerosol, which contains an aqueous solution of a metal and/or non-metal, to the gas mixture during flame hydrolysis of vaporisable compounds of metals and/or non-metals. The doped pyrogenically-prepared oxides may be used, for example, as fillers.

Doped, Pyrogenically-Prepared Oxides

ABSTRACT

Doped, pyrogenically-prepared oxides of metals and/or non-metals, which are doped with one or more doping components in an amount of 0.00001 to 20 wt.%. The doping component may be a metal and/or a non-metal, or an oxide and/or a salt of a metal and/or a non-metal. The BET surface area of the doped oxide may be between 5 and 600 m<sup>2</sup>/g. The doped pyrogenically-prepared oxides of metals and/or non-metals are prepared by adding an aerosol, which contains an aqueous solution of a metal and/or non-metal, to the gas mixture during flame hydrolysis of vaporisable compounds of metals and/or non-metals. The doped pyrogenically-prepared oxides may be used, for example, as fillers.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. Doped, pyrogenically-prepared oxides of metals and/or non-metals, in which the basic components are oxides of metals and/or non-metals prepared by flame hydrolysis, doped with at least one doping component at 0.00001 to 20 wt.%, and in which the doping component is a non-metal and/or metal or a salt or an oxide of a metal or non-metal, and the BET surface area of the doped oxides is between 5 and 600 m<sup>2</sup>/g.
2. Doped, pyrogenically-prepared oxides of metals and/or non-metals as defined in Claim 1, in which the doping amount is in the range of 1 to 10,000 ppm.
3. A process for preparing pyrogenically-prepared oxides of metals and/or non-metals as defined in Claim 1, wherein an aerosol is fed to a flame such as is used for preparing pyrogenic oxides by flame hydrolysis, the aerosol being homogeneously mixed with the gas mixture for flame oxidation or flame hydrolysis prior to reaction, the aerosol/gas mixture is allowed to react in the flame and the resulting doped pyrogenically-prepared oxides are separated from the gas stream, in which a salt solution or suspension which contains the components of the substance to be doped is used as the starting material for the aerosol, and the aerosol is produced by nebulisation.
4. A process as defined in Claim 3, in which the components of the substance to be doped include a metal salt or non-metal salt (metalloid salt) or mixtures of

both, or a suspension of an insoluble metal compound or non-metal (metalloid) compound or mixtures of both.

5. A process as defined in Claim 3 or 4, in which the aerosol is produced by nebulisation using a two-fluid nozzle.

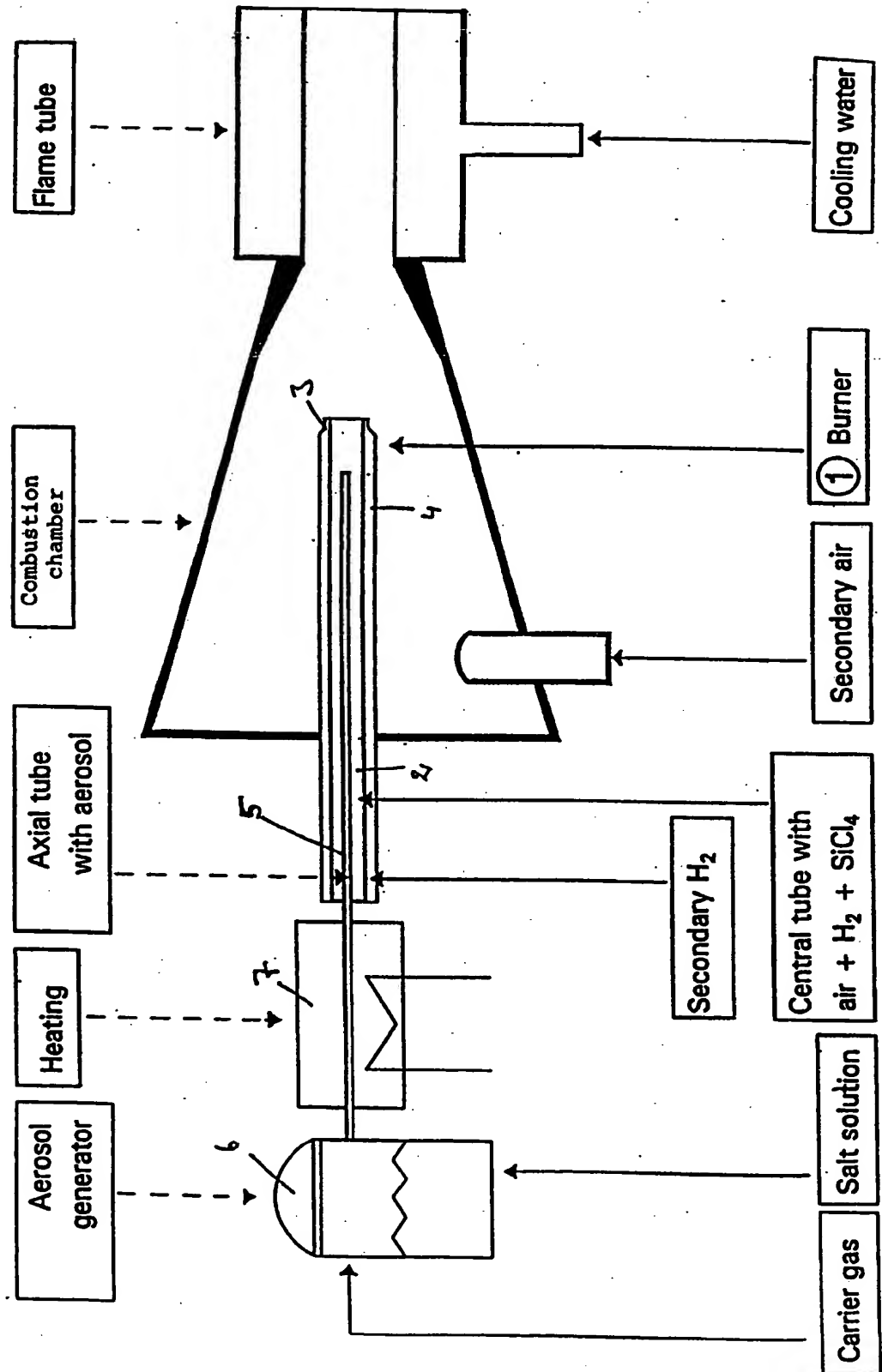
6. A process as defined in Claim 3, 4 or 5, in which the aerosol is produced by ultrasonic nebulisation.

7. The use of doped, pyrogenically-prepared oxides as defined in Claim 1 or 2, as fillers, as support material, as catalytically active substances, as starting materials for preparing dispersions, as polishing materials, as ceramic substrates, in the electronic industry, in the cosmetics industry, as additives in the silicone and rubber industry, to adjust the rheology of liquid systems, for heat-resistant stabilisation purposes, in the lacquer industry and as heat insulation materials.

8. A device for performing the process in accordance with any one of Claims 3 to 6, characterised in that an additional tube for introducing the aerosol into the flame is arranged in a burner of structure for preparing pyrogenic oxides, the tube terminating upstream of the burner nozzle.

9. A device as defined in Claim 8, in which the additional tube for introducing the aerosol into the flame is arranged axially in the burner.

Figure 1:



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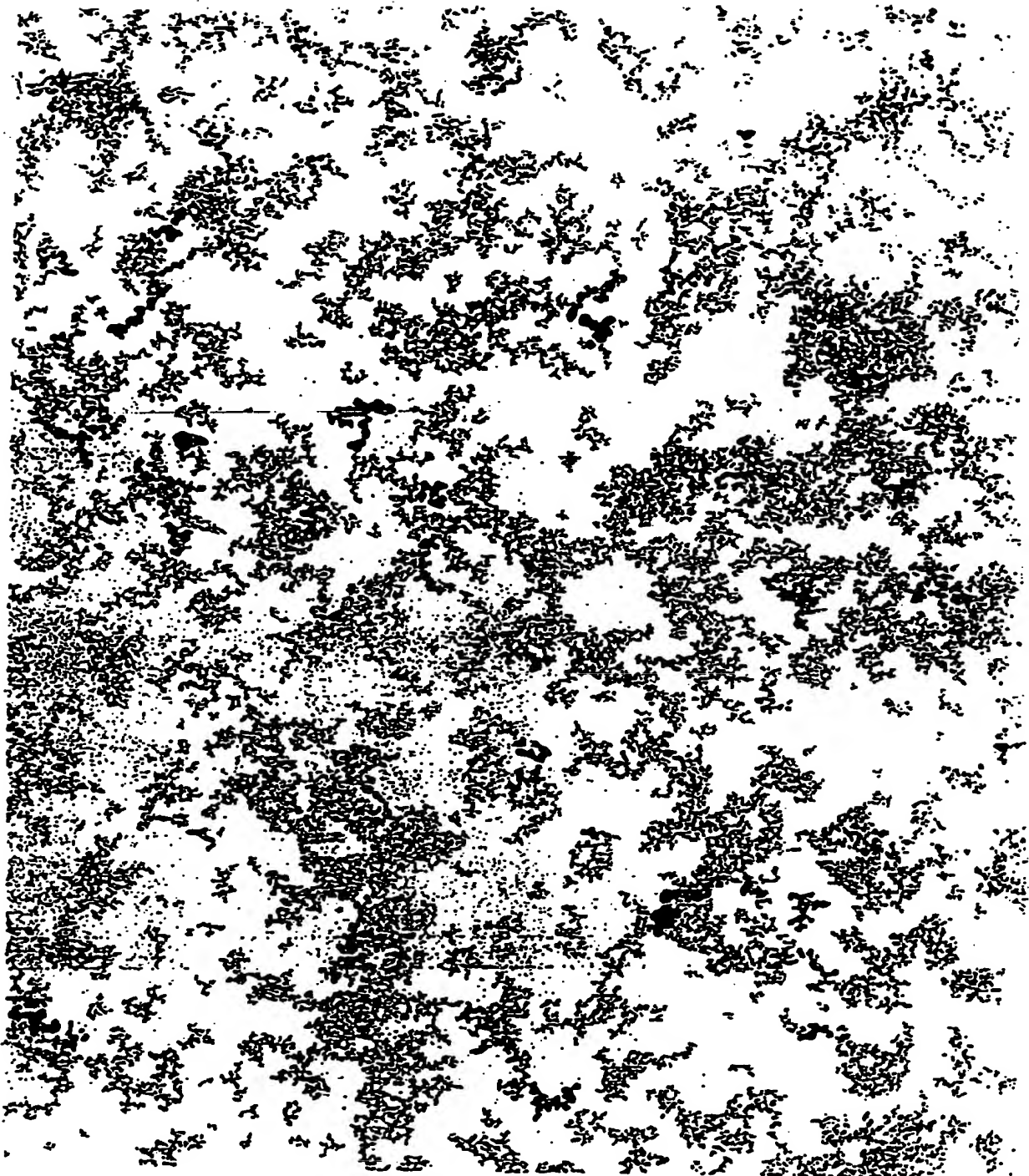


Figure 2

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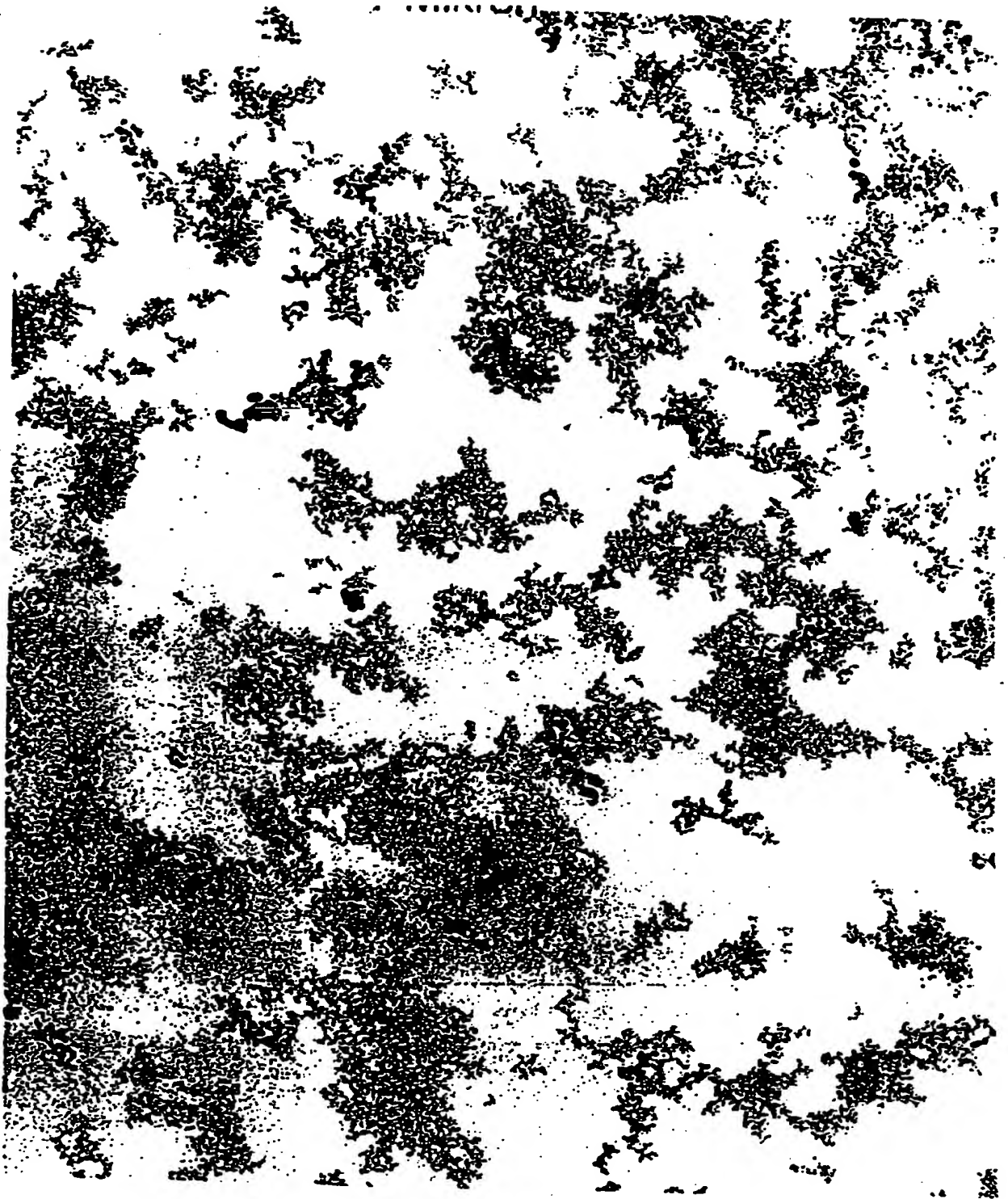


Figure 3

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*Mark & Olen*